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capsules partially collapse so that undoubtedly some of the spores do escape by the breaking of the capsule walls but that this is the main reliance of the species I do not for a moment believe.

Prof. Goebel says that the breaking of the outer walls of the capsule of *B. indusiata* renders it easier for the raindrops to force out the spores (by reason of the lessened resistance of the capsule wall to the impact of the drops) so that he evidently believes that the peristome of *Buxbaumia* is functional.

NOTES ON NOMENCLATURE IV.—THE GENUS *NECKERA* HEDW.

BY ELIZABETH G. BRITTON.

There have been three genera named for Noel J. Necker (1729–1793):

Neckera Scopoli Int. 313. 1777 equals *Capnoides* (Papaveraceæ).

Neckera Hedw. Fund. 2:93. 1782 equals *Neckera* Hedw. (Neckeraceæ).

Neckera Ait. Gmel. Syst. 3:316. 1791. equals *Pollichia* (Caryophyllaceæ).

The first genus named for him is not in use at present, being antedated by *Capnoides* Adans, but as there are one hundred and ten species in this genus, if it be divided, *Neckera* of Scopoli would have precedence over *Neckera* Hedw. Recognizing this fact Mr. S. C. Stuntz published in 1900 a Revision of the North American Species of *Neckera* Hedw., taking up the generic name of *Eleutera* Beauv. (1805). This name is antedated by *Rhystophyllum* Ehrh. (1780–1789) which was founded on *Hypnum crispum* L. (1753), which in turn was based on the descriptions and illustrations given by Dillenius (1741) and Robert Morrison (1699), both of which are unmistakably referable to the genus *Neckera* as at present understood.

As originally founded by Hedwig (1782) his genus *Neckera* was described simply as having a double peristome, and included *Hypnum crispum*, *curtipendulum*, *viticulosum* and *sericeum* which have been referred to *Neckera*, *Antitrichia*, *Anomodon* and *Homalothecium*. The type species is the same as in *Rhystophyllum*, but that Hedwig did not understand the genus at all in its modern restricted sense is shown by his treatment of *Neckera*, in his *Muscorum Frondosorum*, ten years later, when he figured nine species which have since been referred by other authors to *Pilotrichella*, *Pilotrichum*, *Pterobryum* and *Cylindrothecium*, including four species of *Neckera*. Furthermore, Hedwig included one species of *Neckera* in his genus *Leskia* (1782) which was also a mixture, including *Pylaisea*, *Anomodon*, *Eurhynchium* and *Leskea*. In fact it will be found that the descriptions given by Morrison and Dillenius, and quoted by Linnaeus, are more lucid and applicable to the genus, than those given by Hedwig, and as Ehrhart's genus *Rhystophyllum* is monotypic, being based on one Linnean species with two illustrations, and founded on a specimen issued in a set of *Exsiccatae*, there is no question as to his meaning or the application of the name, seeing that its derivation from two Greek words meaning Wrinkled-Leaved, indicates one of the most noticeable characters of the genus as limited in modern times.

It may be of interest to notice the variety of species and genera which have been included under *Neckera* up to 1850 when it was reduced to its natural limits by Schimper. Bridel (1801) described fifteen species, adding some belonging to *Cryphaea* and *Climacium*, to those previously included by Hedwig. In 1819 Bridel divided the genus into two sections, including the species of modern authors in his section *Distichia*, and placing species of *Anomodon* and *Cylindrothecium* under *Neckera*. In the *Bryologia Universalis* (1827) he added another section to the genus and kept the species of *Neckera* under *Distichia*. Carl Müller took up *Distichia* as a genus and described an African species in 1890.

The genus *Eleutera* was founded by Beauvois (1805) as a substitute for *Neckera* because he did not believe in naming genera after persons so he substituted a name applied to Diana! He listed seven species belonging to *Anomodon*, *Antitrichia* and *Neckera*, of which five had been included in *Neckera* by Hedwig, adding two species of *Cylindrothecium*.

Schimper, in the *Bryologia Europæa*, 1850, figured and described five species of *Neckera*: *pennata*, *oligocarpa*, *pumila*, *crispa* and *complanata*, thus bringing the genus into its natural limits, and most subsequent authors have followed him.

But for comprehensiveness and amplification of the genus *Neckera*, Carl Müller exceeded all others, for in 1851, a year after the publication of the fascicle on *Neckera* in the *Bryologia Europæa*, he described one hundred and fifty-two species with nine sections and thirteen subsections including, according to his own statement, the following genera: *Braunia*, *Hedwigidium*, *Entodon*, *Dichelyma*, *Leucodon*, *Asterodontium*, *Antitrichia*, *Sclerodontium*, *Hedwigia*, *Harrisonia*, *Leptodon*, *Lasia*, *Isothecium*, *Rhystophyllum*, *Climacium*, *Pterigynandrum*, *Leptohymenium*, *Pilotrichum* and parts of *Leskea*, *Hypnum*, and *Fontinalis*. It is one of the subsections, *Cryphæadelphus*, which M. Cardot has recently raised to generic rank to replace *Brachelyma* Sch. If all the old sectional and subsectional names which antedate generic names are to be hunted up there will be no end to the changes and the work necessary to get questions of priority correctly determined!

Jaeger in the *Adumbratio* (1875--76) recognized one hundred and four species and two sections of the genus, *Paraphysanthus* Spruce, and *Rhystophyllum* Ehrh., and included in the latter five species recognized by Schimper, adding *Menziesii* and *Douglasii*. Paris, in the *Index*, recognizes one hundred and fifty-eight species of *Neckera*, of which fifty are American and twenty-five are North American and West Indian.

The validity of Ehrhart's genera is being recognized, and Brotherus in the *Pflanzenfamilien* adopts *Georgia*, *Catharinea*, and *Webera* and relegates to synonymy *Tetraphis*, *Atrichum*, *Webera* Hedw. and *Diphyscium* Ehrh. and we believe that *Rhystophyllum* Ehrh. also has valid claims.

Rhystophyllum Ehrh. Beitr. 149, 1789, Crypt. Exsic. No. 97. 1780.

Neckeria Hedw. Fund. 93. 1782 in part.

Leskea Hedw. Fund. 93. 1782 in part.

Neckera Hedw. Musc. Frond. 3:48. 1792 in part.

Eleutera Beauv. Prod. 35. 1805 in part.

Neckera Sch. Br. Eu. fasc. 44-45. 1850.

Type species *Hypnum crispum* L. Sp. pl. 2:1124. 1753.

The following species are at present known in North America:

1. { RHYSTOPHYLLUM DOUGLASHI (Hook.)
 { *Neckera Douglasii* Hooker, Bot. Misc. 1:131. pl. 35. 1830.
 { RHYSTOPHYLLUM PENNATUM (L.)
2. { *Fontinalis pennata* L. Sp. Pl. 1371. 1763.
 { *Neckera pennata* Hedw. Musc. Frond. 3:47. pl. 19. 1792.
 { RHYSTOPHYLLUM OLIGOCARPUM (Bruch.)
3. { *Neckera oligocarpa* Bruch, Mscr. in Hartm. Skand. Fl. 338. 1849.
 { RHYSTOPHYLLUM MENZIESII (Hook.)
4. { *Neckera Menziesii* Hook. in Drum. Musc. Bor. Am. (Ed. 1.)
 { RHYSTOPHYLLUM ONITHOPODIOIDES (Scop.)
5. { *Hypnum onithopodioides* Scop. Fl. Carn. 164. 1760.
 { *Neckera complanata* Hub. Muscol. Germ. 576. 1832.
 { RHYSTOPHYLLUM DISTICHUM (Sw.)
6. { *Fontinalis distichum* Sw. Pr. Fl. Ind. Occ. 138. 1788.
 { *Neckera distichum* Hedw. Musc. Frond. 3:53. pl. 22. 1792.
 { RHYSTOPHYLLUM JAMAICENSIS (Gmel.)
7. { *Hypnum jamaicensis* Gmel. L. Syst. Nat. 1341. 1791.
 { *Neckera undulata* Hedw. Musc. Frond. 3:51. pl. 21. 1792.

**BOOK NOTICE—THE TEACHING OF BIOLOGY, BY F. E. LLOYD
AND M. A. BIGELOW.**

A. J. GROUT.

It is not often that THE BRYOLOGIST feels called upon to review books on other subjects than those to which it professes to devote itself. However, so many of our readers are also teachers that we feel they will thank us for calling their attention to this book which is not merely excellent in theory, but is full of practical hints and suggestions as to material and method.

No teacher of biology or nature study can read this book without being helped. It is almost needless to say that Prof. Lloyd treats of Botany and Prof. Bigelow of Zoölogy.

It is published by Longmans, Green & Co. (in the American Teachers' Series), New York, 8vo., \$1.50.

MUSCI BOREALI-AMERICANI BY PROF. J. M. HOLZINGER.

A. J. GROUT.

Fascicle 5, numbers 101-125 of Prof. Holzinger's Musci Acrocarpi Boreali-Americani has just come to hand. Some of the more interesting species are: *Mnium glabrescens* Kindb., *M. venustum* Mitt., *Bryum coronatum* Schwaegr., *B. Sawyeri* R. & C., *B. cirrhatum* Hoppe., *Orthotrichum pulchellum* Brunton and its variety *leucodon* Vent., *Funaria Americana* Lindb., *Webera prolifera* (Lindb.) Kindb., *Scouleria aquatica* Hook., *Fissidens rufulus* B. & S., and *Dicranodontium longirostre* (Web. & Mohr.) B. & S.